

Figure 2A continued

1841 CCGAGGATTG AACAAAGTTG ATGTTCCCGT ATTTATTGCA GGAGCCAGAG AAGAAAGTGG AAAAATCTAC ACCACAGGCG
>.....>.....*purD*.....>

1921 GGC GCGTGCT CAATGTGGTG GGA ACTGGCG CTACGCTAGA AGAAGCCAGA AAAGTGGCTT ACGAAAATAT CCATAAAATC
>.....>.....*purD*.....>
GAGATCTGG>>.....*OE-F*.....>

BglII

2001 AATTTGATT ATGAATATTA TCGCGAAGAC ATCGGGAAAGA TATAATCTCG CTGATTTTA ACCAAAACAT ATTTAAAAAC
>.....>.....*purD*.....>>

2081 GCTTTGTTA CTTTATAAAA CAAAGGCCTT TTTCTATTTT TGTGCCACTA TAACATGATT TAACCCATGA AAAAAAATACT

2161 AAAAATACTC ATTTTCTAC TGCTCATTCC TTGGGTTAT GCCCTGATT TAATCTTTAT AAATCCACCT ATCACCATT

2241 CACAGCTGAG CAATTTATCT TATGGTTCT CCAGAACACA GCTCGCTTAT GATGAAATTC CGGCTAGTGC TAAATGGGCT

2321 GTAATTGCAG CAGAAGACCA GAATTTGCC ATTCTAAATG GCTTGATTT TAAAGAAATT AAAACCGCCT ACGAGAAAAA

2401 CAAAGCGGGC AAGAAATTGC GTGGCGGGAG CACCCCTTCG CAACAAACTG CCAAAAATGT ATTTTGTGG CAAGGGCGCA

2481 CTTGGATTAG AAAAGGATTG GAAACCTACT GCACCTTAT CATCGAAACG CTGTGGAGCA AGGAGCGTAT TTTGCAAGTT

2561 TACCTCAACA ATGCCGAAAT GGGCAAAGGC GTTATGGCA TAGAGGCAGC GGGCAATAT TATTTAAGA AAAACGCCTC

2641 ACAGCTCACG CCTACCGAGA CGGCACGCAT CATTGCCCTGC CTGCCCAATC CCAAAAATA CAATNTAAC CCGCCAAGTG

2721 CCTACATCTC AAAACGCGGA CAATGGATT C TGCGCCAAGT GCGAAACTTG AAAGGCATA GGGCTCTGAG CGAGATTGTG

2801 AACACGCCCT AACGCCCTGCC TCAACTCTT GCACACAGTT TACCAACTCT CTGCGAAGAG TTCACAAACT CTTCGCACAC

2881 ACTTCCCCAA GTCTTGCAA AGAGTTGGGA GATACTTAGG CACAAAAAAA AGGAACCTCA TGAATAGAGG TTCCCTCTTC

2961 CTTAAAAGGA ATAATAATA ATGTTTTTA AGCTTAGGC TTGGCTACTT TTTCAAAGCC TGCTGCCCTC ATGCTATCTA

HindIII

3041 GGATACGCTT GCCTGGCGG TAGTTTACGC CTACCTTTT GATTAAGCCC GAATGAAAAT CTTTCTCTGT ATCTGCCGCT
<<.....R8.....<

3121 CCACTGCTTA AAGTGGCATA GAGCGAGCCA AGCTTATCTA AACGAACGAT TTTGCCGCT GCCAAGGCCT CTTGAATTAC
<R8.<<*AAGCTTAAG*

HindIII -----
HindIII

3201 ATTCTCTAGC GCAATGATAA CGCCACGAAT ATCTGCCCTCG CTGAGTGGCG AAAACTCTC GATTTGCTTA ACGAGCTGGT

3281 CTATATCCAT TTCTCCATCG CTTGCCACCA CGGCATAGTA TTTTGTGGC TCCCCCTGGCT TGCTTGGTT TCTACGCTGA

3361 ATTACATTGT ATTTATGCT CATAATTACT CTATTTTAA TAGCCTCCCG ATGGATATAA AGTTACGCTA CAATTAGGGT

3441 CTCCATAAGC AAATCTATAC CCCTCTCTT CATATTCCCT TCTCATTCTT CTTGCTCCAT CTCTCAAGGC ATCCGCTCTA

3521 TTACTGCTAT ACCCCTCCTG AAGAAATGTG TCTGCACCTG AAGAAGAATA TGAAGAGCTA TGAGAATCGT GCAACATAGT

3601 CCAAGCTCCA TCTTGAGCTA TAACATTGC ATGACATGTA ACACCTATAG TATAATAAAA TCTCCTAGGA GGTTGTGTT

3681 CACCACCAACC TCCAGAGCTA CTACTTTTT TACATTGTCC ATTTGGTTA GCATGATTT GTCCGCCATC ACTTACTAAC

3761 TTCTTAGCTT CTGCTAAGGC TTTTCTCTT GCTTTCTTT CAGCATCTGC TTGGCTAATT CCACTCACTG CTGTAGCTGT

3841 CGCTTCTTT TTATAGTTA CCGAGGTTCC ATAATAGCCA CTACTACAAT TGTTCTTGT AAAGTTTTA TTAAAAGATT

3921 GAGTTTGTGT TGAGGTGTAC CCTCCGAAAC CTTTACTTC TACAGTAAAG GTAGAACTCC CCATGCTTAC GGGGAAGGTC

4001 GCGATAGTAT ACGATTGCC TGCCGGCATT TGTTTACTT GATACACTCC ATCTCCTCCC ACTTCTATGC TTGCCGTTAA

Figure 2A continued

4081 ATTACCACTA CCGCTAAAG AGCCTTCTGC TATTTTAGT GTAAATCAT TTATATCCCC TCCTTGTCTT TTTGCAGAAG
4161 CTTTGTTAC ACTTACAGCA TCATAAGCTC CTTTCCATT GGTATAAGGT ATTTATATGG CCAAC

Figure 2B continued

1681 CAACCAATTG AGAGAGAAAA TCGGTGTGAT GTTCGGTAGT CCAGAAACCA CAACGGGTGG TAATGCACTT AAATTCTATG
>.....>recA.....>

1761 CATCGGTGCG TCTAGACATT CGTCGTTCTA CTCAGATTAA AGATGGGAAC GATGTCATCG GAAACTTGAC TCGCGTAA
>.....>recA.....>

1841 GTAGTGAAAA ACAAAAGTAGC TCCGCCATTC CGTAGTGCAG AATTGACAT TATGATGGC GAAGGAATCT CTAAAGCAGG
>.....>recA.....>

1921 CGAGATTTA GACATTGCTA CCGATTTAGA AATCGTGAAA AAAAGTGGCT CTTGGTATTC TTATGCAGAT ACTAAACTAG
>.....>recA.....>

2001 GACAAGGGCG AGATGCCGTG CGTGCCTAT TGAAAGATAA TCCAGAATTAA GCCGAAGAAT TAGAAGAGAA AATTAAAGAA
>.....>recA.....>
CGAGATCT>>.....OEF1.....>

2081 GAATTAGAGA AAAAATAGAT TTTTAGTTT TTTAATTAA ACGAAAAATC CGTTCACTTT GTTGAACGGA TTTTTTATG
>.....>recA.....>>

2161 CTTGAATGAA TTTATTTCCA ATGGATTGAA TAGCCATGCA CTTTAAATC TTGCTATCA TAAGTGATTT CTTGTCGGT

2241 GTTGGGATAG CAAACTTAA GTCCTGCGTA TTTGGCAATG GCATGTCCTG CGGCAATGTC CCAAAAGTTT ACAGGTCTAA

2321 AGCGGGTGTGTA CTCCGTAGCC CACCGATCGG CAATTAGCCC AAGTTTGATA ACGCTTCCA TAGGCTTGT GCGGAAAATT

2401 TCATGTTCGG ATTTAATTAA TTTGATGTAT TCCTCGGTGC CAGGATCCAT GTGGAATTG CTACAAAGAA AAGTGTAAATC

2481 TTCGGGCAAA TCCATGGTAG GAATTGGCTT GCTGTGTTTC ATCAATTGTT CAAAAAAATC CGATTTCAGA GCCATTGTTG

2561 GCAATTGTTG TTGAGTCCCG ATGAATTAC GAGAAGGGCA TTTATCGCTA CCGAAATAGA ACAATCCAAG CGATGGGGCG

2641 TACAAAATC CTAGCTTAGC CGTATTATTC TCAACTAACG CTAGACACAC GCAATATTCA TCTGTTTGT TGACAAAATC

2721 CATGGTGCCA TCAATAGGGT CTGCAATCCA ATAGGTGGGC GTATTCTAA TTTCTGTAA AGAATCCTTA TCTCCTTCCT

2801 CACTAAAGTA TGGAATGTCT GTAAAGGAAA CATGTTTTG CAAGATTTG TTGGCGGCTA AATCTGCACT TGTAAACAGGC

2881 GATCCGTCGG CTTGGTCTC GGTGGAGAAT CCGTTTGGA TTGTTTAAA ACCTCTCGC CAGCAAGTGC TACAGCCCGT

2961 GTTGCATTCTAATTAATT CATAATCATT CTTTATTCT CGAACAAAGT CAAATAATTC TCTGTATTAA AAAATAATTT

3041 TGGCGATAAA AATTAAAATT TATATATAAA ATATCTCTGC AAAAAACCAA ATCAAATATT TAGTGAATA AAAAAAATTA

3121 GATTGTAAAT TTGCCTTATG TTTTAGAGA ATACCATAAA TCATAGAAAA AATACGGGCT GGATCGAAGT AATCTGTGGC

3201 TCTATGTTT CGGGCAAAAC CGAAGAGTTG ATTCTAGAG TGAAACGAGC CGAATTGGCT GGGCAAAAGG TAGAAATCTT
<<.....R5.....<<AAGCTTAAG

3281 TAAACCCGCA ATTGATAAAC GCTACGATGA GCAAGATGTG GTATGCACTG ATGAAAACAA AAAACAAGCA ACCCCGATTG

3361 AGGCAGGTTCA TAACTTGCCC ATTCTAGCAA GCGATTGTGA TGTGGTGGGG ATAGATGAGG CTCAATTCTT TGACGAAGGA

3441 ATTGTTGAGG TGGCAAATCT TTTAGCTAAT TCGGGGAAAA GAATAATTAT TGCGGGATTA GACATGGATT TTAAAGGTG
<<.....RrecAOR1.....<<

3521 TCCATTGGT CCTATGCCAA ATTTAATGGC GGTAGCGGAA TATGTGACCA AAGTGCATGC AATCTGTGTG AAAACAGGGA

Figure 2B continued

table 5

group	no. of chickens	Treatment		Results	
		vaccination at day 1	challenge at day 25	challenge at day 31	% of max air sac score at day 10 (safety) at day 38 (efficacy)
1	25	NDV	ReA aerosol	NDV	WT-OR aerosol 2.5 25 ^a
2	25	NDV	PuD aerosol	NDV	WT-OR aerosol 7.5 23 ^b
3	25	NDV	WT-OR aerosol	NDV	WT-OR aerosol 68 10 ^c
4	25	NDV		NDV	WT-OR aerosol 0 47
5	25	NDV		NDV	0 2

^a Significantly different ($p<0.05$) compared to the controls (group 1) using two-sided Mann-Whitney U test

Figure 2B continued

table 6

group	no. of chickens	vaccination		Treatment		% reduction
		at day 1	day 30	challenge day 35	challenge day 35	
1	15	NDV	PuD aerosol	NDV	WT-OR aerosol	no reduction
2	15	NDV	PuD aerosol	NDV	WT-OR aerosol	54% ^b
3	15	NDV		NDV	WT-OR aerosol	no reduction
4	15	MAS		NDV	WT-OR aerosol	no reduction
5	15	MAS	PuD aerosol	NDV	WT-OR aerosol	50% ^b

^bSignificantly different ($p<0.05$) compared to the controls (group 1) using two-sided Mann-Whitney U test